

Table 1: Characteristics of children by region.

	Overall (n=529)	Denmark (n=47)	The Netherlands (n=56)	Slovenia (n=54)	Switzerland (n=98)	Spain				
						Gipuzkoa (n=49)	Granada (n=30)	Menorca (n=53)	Sabadell (n=99)	Valencia (n=43)
Individual characteristics										
Age (in years)	12.5 (3.1)	15.4 (1.3)	12.0 (0.4)	12.7 (2.6)	14.3 (1.2)	7.8 (0.2)	14.0 (0.5)	17.5 (0.1)	9.3 (0.6)	10.7 (0.4)
Female (vs male)	49	51	52	54	51	51	0*	51	55	44
Urban (vs rural or suburban)	49	28	71	78	25	0	47	55	99	2
At least one parent with university education										
(vs secondary or primary)	55	94	81	87	49	58	22	23	46	23
5 or + people in home (vs ≤4)	23	28	30	57	28	14	13	17	12	7
Device use habits										
DECT in home (vs no)	72	26	76	69	91	72	81	65	79	63
Wifi in home (vs no)	95	98	95	91	92	87	90	93	99	80
Use of MP (vs no)	74	96	95	70	95	23	80	94	46	79
Use of smartphone (vs no)	71	96	91	56	94	14	77	94	44	77
MP call frequency ≥ 2 calls/day (vs <2)	16	40	13	50	10	2	3	30	1	9
MP call duration >5min/day (vs ≤5)	9	9	5	28	12	0	3	13	1	5
Internet on MP >30 min/day (vs ≤30)	37	72	43	26	64	0	63	62	0	19
SMS frequency >5/day (vs ≤5)	10	32	5	28	12	0	10	4	0	2
App-based messaging >10/day (vs ≤10)	34	40	34	13	62	0	63	85	3	19
MP turned on in bedroom at night (vs off, flight mode or outside bedroom)	30	66	16	43	40	0	30	76	0	14
Use of tablet (vs no)	39	51	54	20	38	37	30	26	40	49

Abbreviations: DECT, digital enhanced cordless telecommunications MP, mobile phone.

Values are mean (standard deviation) for continuous variables and percentages for categorical values.

*In this sample, the Granada region was comprised of all males.

Table 2: Median exposure of radiofrequency electromagnetic fields power density ($\mu\text{W}/\text{m}^2$) from different general frequency bands over whole measurement period by region (n=529)

Region	N	Total	DECT	Broadcast	Uplink	Downlink	WiFi
Denmark	47	89.6	0.2	11.9	9.4	33.8	2.9
Netherlands	56	65.8	0.7	7.7	3.1	40.6	3.3
Slovenia	54	60.7	0.2	9.8	2.8	31.3	0.9
Switzerland	98	39.3	0.1	5.4	6.0	9.5	1.3
Spain	Gipuzkoa	49	55.8	0.0	20.2	2.4	12.0
	Granada	30	177.8	0.5	73.5	3.8	35.0
	Menorca	53	93.5	0.0	0.7	3.4	20.4
	Sabadell	99	107.7	1.0	17.5	3.1	44.5
	Valencia	43	80.5	0.1	12.5	5.9	28.4
Overall	529	75.5	0.2	9.9	4.7	27.2	1.8

Abbreviations: DECT, digital enhanced cordless telecommunications.

Mathematical note: the sum of medians does not equal the total median.

Table 3: Median total exposure of radiofrequency electromagnetic field ($\mu\text{W}/\text{m}^2$) in different microenvironments or during different times over the whole measurement period, by region (n=529)

Region	Total	Diurnal		Days of week		Microenvironment				Types of travel				
		Day	Night	Weekday	Weekend	Home	School	Outside	While traveling	Bus (n=114)	Car (n=327)	Train (n=37)	Tram (n=18)	Metro (n=4)
Denmark	89.6	126.7	26.8	103.9	99.3	35.5	76.0	285.1	282.0	259.1	172.5	418.9	95.7	536.1
Netherlands	65.8	89.6	12.9	65.8	79.9	24.9	43.2	292.4	149.8	238.9	130.3	131.5	232.1	221.7
Slovenia	60.7	75.8	22.2	59.7	55.6	28.6	28.8	228.8	224.5	193.5	191.2	NA	NA	NA
Switzerland	39.3	49.7	12.0	42.3	32.4	18.9	17.9	123.4	195.9	194.5	64.4	348.9	185.8	NA
Gipuzkoa	55.8	67.8	19.8	48.3	74.0	27.8	30.3	101.6	55.1	65.6	54.5	NA	NA	NA
Granada	177.8	202.3	92.5	225.8	82.4	125.5	268.4	135.2	144.4	383.5	93.6	NA	NA	NA
Spain	93.5	108.9	19.0	86.9	86.2	25.3	57.3	166.5	255.5	291.5	256.7	NA	NA	NA
Sabadell	107.7	116.6	48.4	105.23	122.5	64.4	50.7	153.1	148.1	211.3	149.7	211.7	NA	NA
Valencia	80.5	103.6	27.1	71.7	88.4	32.8	36.1	93.8	158.9	162.1	156.9	967.2	NA	NA
Overall	75.5	94.2	23.0	72.0	78.9	33.0	35.1	157.0	171.3	208.5	140.5	389.7	202.0	536.1

NA: not applicable, children in these regions did not report any travel via train, tram, or metro.

Mathematical note: the sum of medians does not equal the total median.

Table 4: Individual characteristics and geometric mean (GM) ratios of radiofrequency electromagnetic fields exposure by general frequency bands*

Individual characteristics		Total			DECT			Broadcast			Uplink			Downlink			Wifi		
		GM ratio	95% CI		GM ratio	95% CI		GM ratio	95% CI		GM ratio	95% CI		GM ratio	95% CI		GM ratio	95% CI	
Age	(year)	0.99	0.96	1.03	0.90	0.85	0.95	0.85	0.81	0.89	1.20	1.15	1.26	0.97	0.93	1.01	1.03	1.00	1.07
Sex	male	1.00			1.00			1.00			1.00			1.00			1.00		
	female	1.02	0.84	1.24	1.12	0.83	1.52	0.96	0.72	1.29	1.85	1.40	2.46	1.01	0.80	1.27	0.96	0.78	1.19
Urbanicity of home	rural	1.00			1.00			1.00			1.00			1.00			1.00		
	suburban	1.26	0.96	1.67	3.47	2.21	5.43	1.17	0.74	1.84	1.15	0.75	1.76	1.26	0.91	1.75	1.27	0.94	1.72
	urban	1.98	1.57	2.48	6.26	4.34	9.04	1.28	0.88	1.85	0.79	0.56	1.12	2.98	2.28	3.90	1.11	0.87	1.42
Parent education	primary	1.00			1.00			1.00			1.00			1.00			1.00		
	secondary	0.56	0.40	0.78	1.17	0.66	2.06	0.78	0.46	1.33	0.48	0.29	0.78	0.76	0.50	1.15	0.90	0.63	1.28
	university or +	0.62	0.46	0.85	1.25	0.73	2.12	0.92	0.56	1.51	0.37	0.23	0.58	0.96	0.66	1.41	0.88	0.63	1.21
Number of people living in home	≤4	1.00			1.00			1.00			1.00			1.00			1.00		
	5 or +	0.87	0.68	1.10	0.81	0.54	1.21	0.94	0.64	1.37	0.87	0.60	1.24	0.89	0.67	1.19	0.92	0.72	1.19

Abbreviations : DECT, digital enhanced cordless telecommunications.

* Mixed effects models with region random effects, except for the model for age, due to the high correlation between region and age.

Table 5: Device use habits and geometric mean (GM) ratios of electromagnetic fields exposure by general frequency bands*

Device use habits		Total			DECT			Broadcast			Uplink			Downlink			WiFi		
		GM ratio	95% CI		GM ratio	95% CI		GM ratio	95% CI		GM ratio	95% CI		GM ratio	95% CI		GM ratio	95% CI	
DECT phone in home	no	1.00			1.00			1.00			1.00			1.00			1.00		
	yes	1.10	0.87	1.38	1.88	1.32	2.68	1.49	1.05	2.12	0.79	0.57	1.11	0.95	0.72	1.25	0.99	0.77	1.27
WiFi in home	no	1.00			1.00			1.00			1.00			1.00			1.00		
	yes	0.87	0.55	1.40	1.23	0.60	2.51	1.32	0.65	2.68	0.63	0.32	1.23	0.69	0.40	1.20	1.09	0.67	1.79
Use of MP at least 1x/wk	no	1.00			1.00			1.00			1.00			1.00			1.00		
	yes	1.09	0.83	1.43	1.23	0.81	1.88	0.94	0.62	1.44	2.02	1.37	2.99	1.35	0.98	1.85	1.02	0.76	1.36
Use of smart-phone	no	1.00			1.00			1.00			1.00			1.00			1.00		
	yes	1.15	0.88	1.49	1.45	0.96	2.18	0.86	0.57	1.29	2.11	1.45	3.08	1.46	1.07	1.98	1.16	0.88	1.54
MP call frequency	none	1.00			1.00			1.00			1.00			1.00			1.00		
	1 call/day	1.11	0.86	1.42	1.14	0.77	1.67	1.13	0.77	1.66	1.58	1.11	2.27	0.96	0.72	1.28	1.02	0.78	1.33
	>= 2 calls/day	1.16	0.86	1.58	1.48	0.92	2.37	0.86	0.54	1.38	1.95	1.25	3.02	1.34	0.94	1.92	0.96	0.69	1.33
MP call duration	none	1.00			1.00			1.00			1.00			1.00			1.00		
	1-5 min/day	1.10	0.87	1.38	1.30	0.91	1.87	0.93	0.65	1.33	1.68	1.20	2.35	1.01	0.77	1.33	0.98	0.76	1.26
	>5 min/day	1.37	0.94	2.00	0.95	0.53	1.71	1.16	0.65	2.08	2.29	1.33	3.96	1.12	0.72	1.75	1.06	0.71	1.60
Internet use on MP	none	1.00			1.00			1.00			1.00			1.00			1.00		
	1-30 min /day	1.31	0.97	1.77	1.33	0.83	2.13	1.10	0.69	1.76	1.57	1.02	2.41	1.55	1.10	2.21	1.33	0.97	1.82
	>30 min/day	1.26	0.92	1.72	1.38	0.84	2.29	1.08	0.65	1.78	2.24	1.42	3.51	1.30	0.90	1.88	1.71	1.22	2.38
SMS frequency	none	1.00			1.00			1.00			1.00			1.00			1.00		
	1-5/day	1.20	0.88	1.65	1.77	1.09	2.88	1.34	0.82	2.18	1.65	1.04	2.60	1.26	0.87	1.81	0.94	0.67	1.31
	>5/day	1.35	0.94	1.95	1.46	0.83	2.58	1.11	0.63	1.95	1.67	0.98	2.85	1.41	0.92	2.16	1.01	0.68	1.50
App-based messaging	none	1.00			1.00			1.00			1.00			1.00			1.00		
	1-10/day	1.26	0.93	1.73	1.19	0.73	1.95	0.90	0.55	1.47	1.37	0.88	2.15	1.45	1.00	2.08	1.37	0.98	1.90
	>10/day	1.11	0.82	1.50	0.91	0.56	1.48	0.72	0.44	1.17	2.01	1.30	3.10	1.15	0.81	1.64	1.56	1.13	2.16
MP at night	off, flight mode, outside bedroom	1.00			1.00			1.00			1.00			1.00			1.00		
	turned on inside bedroom	1.22	0.95	1.56	1.24	0.84	1.82	1.01	0.68	1.48	1.81	1.27	2.58	1.26	0.94	1.69	1.59	1.22	2.07
Use of tablet	no	1.00			1.00			1.00			1.00			1.00			1.00		

yes	0.91	0.74	1.11	1.06	0.77	1.44	1.04	0.76	1.42	1.01	0.75	1.36	0.78	0.61	0.99	1.19	0.96	1.47
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Abbreviations: DECT, digital enhanced cordless telecommunications; MP, mobile phone; SMS, short message service.

* Mixed effects models with region random effects adjusted by sex, urbanicity of home, and parent education

Table 6: Day-to-day repeatability: Comparisons of radiofrequency electromagnetic fields exposure ($\mu\text{W}/\text{m}^2$) between two consecutive 24 hour periods: weekday 1 and weekday 2 (n=497), or weekend day 1 and weekend day 2 (n=167)

	Day 1			Day 2			Intraclass correlation (95% CI)*
Weekday	Min	Median	Max	Min	Median	Max	
General frequency bands							
Total	2.2	148.7	8002.0	0.5	57.8	6895.9	0.57 (0.52, 0.61)
DECT	0.0	0.2	142.1	0.0	0.2	1055.8	0.72 (0.68, 0.75)
Broadcast	0.0	7.9	7765.3	0.0	7.1	6890.2	0.74 (0.71, 0.77)
Uplink	0.0	2.3	767.3	0.0	2.0	1715.8	0.26 (0.21, 0.32)
Downlink	0.1	20.8	3440.7	0.1	18.0	3688.3	0.45 (0.40, 0.50)
WiFi	0.0	12.9	312.6	0.0	12.2	97.1	0.36 (0.30, 0.42)
Diurnal							
Day	2.5	71.4	11938.7	0.4	66.4	9358.7	0.42 (0.37, 0.47)
Night	0.7	18.1	5095.2	0.5	20.3	4641.4	0.85 (0.83, 0.87)
Weekend day							
General frequency bands							
Total	1.0	73.3	4747.2	0.8	71.3	11055.0	0.43 (0.31, 0.57)
DECT	0.0	0.2	52.7	0.0	0.1	724.3	0.71 (0.62, 0.78)
Broadcast	0.3	7.4	3005.6	0.3	7.6	8660.1	0.78 (0.71, 0.84)
Uplink	0.1	3.5	806.7	0.1	3.1	634.8	0.21 (0.09, 0.41)
Downlink	0.1	16.3	1741.0	0.2	21.9	10734.6	0.53 (0.41, 0.65)
WiFi	0.0	1.3	129.7	0.0	1.2	112.9	0.38 (0.25, 0.53)
Diurnal							
Day	0.9	87.0	5171.0	0.8	81.0	1655.9	0.32 (0.20, 0.48)
Night	0.7	21.2	3899.5	0.6	22.5	2651.5	0.78 (0.72, 0.84)

* Exposures were log-transformed for intraclass correlation analysis.

Abbreviations: CI, confidence interval; DECT, digital enhanced cordless telecommunications; Min, minimum ; Max, maximum.

Table 7: Year-to-year repeatability: Comparisons of radiofrequency electromagnetic fields exposure ($\mu\text{W}/\text{m}^2$) between two 24 hour periods one year apart: weekday year 1 and weekday year 2 (n=28), or weekend day year 1 and weekend day year 2 (n=9)

	Year 1			Year 2			Intraclass correlation (95% CI)*
Weekday	Min	Median	Max	Min	Median	Max	
General frequency bands							
Total	8.8	77.2	4115.1	5.9	123.5	972.0	0.49 (0.32, 0.66)
DECT	0.1	1.0	34.2	0.0	0.7	21.6	0.26 (0.13, 0.46)
Broadcast	1.1	16.3	366.6	8.8	19.9	356.3	0.71 (0.57, 0.82)
Uplink	0.1	0.8	401.9	0.1	0.5	72.0	0.11 (0.03, 0.33)
Downlink	2.1	44.5	645.9	2.2	89.3	767.6	0.55 (0.39, 0.70)
WiFi	0.1	0.9	19.5	0.2	0.7	49.2	0.12 (0.04, 0.31)
Diurnal							
Day	12.1	93.3	6169.8	5.5	160.9	1179.2	0.39 (0.24, 0.57)
Night	2.2	62.8	1279.9	4.0	67.4	574.4	0.76 (0.64, 0.85)
Weekend							
General frequency bands							
Total	15.1	79.7	603.9	14.9	152.5	4103.1	0.79 (0.43, 0.95)
DECT	0.1	1.2	7.7	0.0	0.5	18.5	**
Broadcast	0.7	11.5	461.8	2.1	29.7	269.3	0.80 (0.46, 0.95)
Uplink	0.1	2.4	38.4	0.3	2.1	116.8	0.17 (0.00, 0.93)
Downlink	5.6	30.8	240.3	1.0	108.4	3812.6	0.78 (0.40, 0.95)
WiFi	0.2	0.9	12.1	0.5	1.8	8.4	0.31 (0.03, 0.89)
Diurnal							
Day	18.8	91.2	1008.9	15.0	213.8	5875.2	0.73 (0.38, 0.92)
Night	2.2	45.2	266.4	4.4	52.2	558.7	0.75 (0.37, 0.94)

* Exposures were log-transformed for intraclass correlation analysis.

**Too few observations to complete analysis

Abbreviations: CI, confidence interval; DECT, digital enhanced cordless telecommunications; Min, minimum ; Max, maximum.